

## CLAIMS

1. A dry pump apparatus comprising;  
a pumping mechanism,  
a controller for controlling the operation of the pumping mechanism, and  
a sensor for sensing the operating temperature of the pumping mechanism  
wherein the controller is configured to carry out an automated shutdown  
sequence involving the following steps;  
a) ceasing operation of the pumping mechanism  
b) monitoring the temperature of the pumping mechanism by means of the  
temperature sensor  
c) at at least one pre-selected temperature interval, initiating operation of  
the pumping mechanism for a fixed time period so as to purge a proportion  
of contaminant particulate matter present until a predefined temperature is  
reached or a predefined time limit has passed.
2. A dry pump apparatus as claimed in claim 1 wherein the controller  
comprises a microprocessor.
3. A dry pump apparatus as claimed in claim 2 wherein the  
microprocessor is embodied in a computer.
4. A dry pump as claimed in claim 3 wherein the computer has installed  
thereon computer software which causes it to perform the method steps a)  
to c).
5. A dry pump apparatus as claimed in any preceding claim wherein the  
pumping mechanism includes a claw type rotor arrangement.
6. A method for reducing the incidence of restart failure in a dry pump  
comprising the steps of;  
a) detecting the cessation of operation of the pumping mechanism

b) monitoring the temperature of the pumping mechanism after cessation of operation

c) at at least one pre-selected temperature interval, initiating operation of the pumping mechanism for a fixed time period so as to purge a proportion of contaminant particulate matter present until a predefined temperature is reached or a predefined time limit has passed.

7. A method as claimed in claim 7 wherein step c) is performed at pre-selected temperature intervals corresponding to regular drops in the monitored temperature of the pumping mechanism.

8. A method as claimed in claim 7 wherein the regular drop interval is 10°C.

9. A method as claimed in any of claims 6 to 8 wherein the fixed time period is between 15 and 45 seconds inclusive.

10. A method as claimed in any of claims 6 to 9 wherein the fixed time period is the same for each pre-selected temperature interval.

11. A method as claimed in claim 10 wherein the fixed time period is 30 seconds.

12. A method as claimed in any of claims 6 to 9 wherein the fixed time period is different for each pre-selected temperature interval.

13. A method as claimed in any of claims 6 to 12 wherein the method is performed for a predefined time limit.

14. A method as claimed in claim 13 wherein the predefined time limit is 2 hours from cessation of operation.

15. A method as claimed in any of claims 6 to 14 wherein at the end of each fixed time period of operation of the pump mechanism a separate inlet purge function is effected by the controller.

16. A method as claimed in any of claims 6 to 15 wherein the method is ceased when the first of a predetermined temperature or a predefined time limit has been reached.

17. A computer program which, when installed on a computer, causes the computer to perform the method of any of claims 6 to 16.

18. A computer readable carrier medium which carries a computer program as claimed in claim 17.

19. A computer readable carrier medium wherein the medium is selected from; a floppy disk, a CD, a mini-disc or digital tape.

20. A dry pump apparatus substantially as described herein with reference to the Figures 1 to 4.

21. A method for reducing the incidence of restart failure in a dry pump substantially as described herein with reference to Figures 1 to 4.

22. A computer program substantially as described herein with reference to the Figures 1 to 4.